Spring 2021

ME 316-104: Machine Design

Narasinha Parasnis

ME 316-104 Machine Design

Prof. Narasinha Parasnis, narasinha.c.parasnis@njit.edu
Converged Learning Course[1], Wednesdays 06:00 PM - 08:50 PM
Kupfrian Hall 205
Office Hours : Wednesday 5:00 to 6:00 PM

Outline

Text Book	Shigley's Mechanical Engineering Design, 11th Edition By Richard Budynas and Keith Nisbett ISBN10: 0073398217, ISBN13: 9780073398211, Copyright: 2020
Course Description	The course will introduce you to the design process as related to design of machine elements. This course will teach you the concepts and methodologies behind the design of several types of mechanical components that are subjected to different types of loading conditions
Prerequisite(s)	• ME 231 Kinematics of Machinery • ME315 Stress Analysis
Best ways to contact with me	• Office hours, Wednesday 5:00 to 6:00 PM • Email: narasinha.c.parasnis@njit.edu • I am targeting to reply to each email within 24 hours

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Meeting Details (class and project meeting info, exam meetings will have their own separate meeting details, which will be shared prior to exams)
https://njit.webex.com/njit/j.php?MTID=mf8f5fdc9bf139acaaec53f03bd1da8b1 Occurs every Wednesday effective 1/20/2021 until 5/12/2021 from 5:55 PM to 9:15 PM, (UTC-05:00) Eastern Time (US & Canada) Meeting number: 120 361 9581 Password: machine Join by video system Dial 1203619581@njit.webex.com You can also dial 173.243.2.68 and enter your meeting number. Join by phone 1-650-479-3207 Call-in toll number (US/Canada) Access code: 120 361 9581

[1] https://www5.njit.edu/registrar/sites/registrar/files/lcms/forms/Converged Learning.pdf

Course Schedule (Note: this is just a planned schedule, depending on class progress, the class schedule can be changed on an as needed basis)

Week	Date	Topic	Due
1	Jan-20-2021	Introduction Chapter 1: Introduction to Mechanical Engineering Design Chapter 2: Materials	None
2	Jan-27-2021	Chapter 3: Load and Stress Analysis	HW1 based on chapter 1 and 2
3	Feb-03-2021	Chapter 4: Deflection and Stiffness	HW2 based on chapter 3
4	Feb-03-2021	Chapter 5: Static Failure	HW3 based on chapter 4
5	Feb-03-2021	Chapter 6: Fatigue Failure	HW4 based on chapter 5
4	Feb-10-2021	Exam 1	HW5 based on chapter 6
5	Feb-17-2021	Project Presentation, Requirements	Project requirements
6	Feb-24-2021	Chapter 7: Shafts	None
7	Mar-03-2021	Chapter 8: Screws	HW6 based on chapter 7
8	Mar-10-2021	Chapter 10: Mechanical Springs	HW7 based on chapter 8
9	Mar-17-2021	Spring Recess	None
10	Mar-24-2021	Chapter 11: Rolling bearings	HW8 based on chapter 10
11	Mar-31-2021	Exam 2	HW9 based on chapter 11
12	Apr-07-2021	Project Presentation, Concept Design	Project Concept Design
13	Apr-14-2021	Chapter 13: Gears	None
14	Apr-21-2021	Chapter 14: Spur and Helical Gears	HW10 based on chapter 13
15	Apr-28-2021	Project Presentation, final design	HW11 based on chapter 14 Project Design Final
16	May-05-2021 or May-06-2021	Final Exam help session	None

Week	Date	Topic	Due
17	TBD	Final Exam	None

Homeworks (30% of final grade)

11 homeworks will be assigned throughout the semester, 1 lowest grades will be dropped and remaining 10 homework grades will be counted towards the final grade.

Project (20% of final grade)

The class will be divided into groups. Each group will be assigned one project. The group will work on that project throughout the semester. The project will be presented by the class three times during the semester.

1. First presentation will involve research and requirements, (5% of final grade)
2. Second presentation will be concept review, (5% of final grade)
3. Third presentation will be final comprehensive project review (10% of final grade).

Exams (50% of final grade)

There will be 3 exams during the semester of which one will be a comprehensive final. The exams will be based on content covered in the class and as a part of homeworks.

1. Exam 1: Chapters 1, 2, 3, 4, 5, 6 (10% of final grade)
2. Exam 2: Chapters 7, 8, 10, 11 (10% of final grade)
3. Final exam: Comprehensive (30% of final grade)

Grading

Item	% of total grade
Homeworks (10 out of 11 highest grades will be used)	30
Project, requirements, and problem definition	5
Project, concept design and review	5
Project, final design, and review	10
Exam 1	10
Exam 2	10
Final Exam	30

Final score	Letter grade
90 % and above	A
80% and above	B
70% and above	C
60 % and above	D
< 60%	F

Extra credit

Extra-credit (up to 5 points) will be available based on class attendance and participation. These Extra-Credits are added to the final Grade Points.

Unexcused absences

Any more than 1 unexcused absence will negatively affect your grade.

Correspondence

Please be clear, concise, and professional in your email correspondence.

Academic Integrity

"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. ***Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.*** *If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu"*

This listing of "best practices" was assembled by a special Task Force on Academic Integrity in Fall 2006 with input solicited from the entire NJIT community.

http://www5.njit.edu/provost/sites/provost/files/lcms/docs/Best_Practices_related_to_Academic_Integrity.pdf